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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/769,761
Filing Date: February 03, 2004
Appellant(s): CARGILL, EDWARD JAMES

Terrence N. Kuharchuk
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11-1-06 appealing from the Office action mailed 4-4-

06.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Ground 2 has been modified to include Jesswein, which is being relied on for evidence only.

NEW GROUND(S) OF REJECTION

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (specification pages 1-2 and /or preamble of claim is Jepson style indicating that before "the improvement" is prior art) in view of Bent in view of Chrzanowski (4,703,937) in view of Jesswein (4,210,405) (evidence only).

(7) Claims Appendix

A substantially correct copy of appealed claims 1-20 appears on page 29-32 of the Appendix to the appellant's brief. The minor errors are as follows:

In Claim 1, the following phrases were deleted in an amendment on 1/11/06:

Line 5, "extending within the seal assembly and defining"

Line 13, "and"

Line 17, "extending within the seal assembly"

Line 21, "to restrain movement of the seal element relative to the seal housing;"

(8) Evidence Relied Upon

4,729,569	MULLER et al	3-1988
2,462,596	BENT	2-1949
4,703,937	CHRZANOWSKI	11-1987
4,210,405	JESSWEIN	7-1980
4,610,319	KALSI	9-1986

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 7-10, and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller (4,729,569).

Muller discloses a seal assembly having a seal element 4 that seals a first side from a second side. The seal element 4 is a compressible material and is retained within a housing (e.g. 8 or 3). The seal and housing have mating planar surfaces (Fig. 1c shows seal can have planar sides, portions 32 in Fig. 2b are planar). The housing has at least one depression 31 isolated from

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adjacent depressions. A fluid pressure “p” is exposed to the seal on the second side and causes a force that presses the material of the seal into depressions 31 in the housing thereby restraining movement of the seal relative to the housing (e.g. col. 2, lines 21-24). As seen in Figures 4a or 7b, a “spring” 2 can preload the seal 11 or 9 into engagement.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant’s admitted prior art (specification pages 1-2 and /or preamble of claim is Jepson style indicating that before “the improvement” is prior art) in view of Bent in view of Chrzanowski (4,703,937) in view of Jesswein (4,210,405) (evidence only).

Applicant discloses a known sealing assembly having a compressible member in a housing each having planar engagement surfaces and a spring used for a preloading mechanism. However, Applicant does not disclose a depression in the planar surface normal to the axis. Bent teaches a seal assembly for use with a rotating or reciprocating shaft (col. 1, lines 1-5) having a seal element within a housing. Bent teaches a groove or depression 7 formed in “at least one wall” of the groove (see col. 1, lines 29-31). The annular groove receives the compressible material of the seal when a fluid pressure is exerted on a side of the seal. Bent teaches the groove prevents excess friction between the seal and shaft and teaches the seal is restrained from movement relative to the housing. Although Bent teaches the groove can be in at least one wall, Bent does not appear to disclose that the groove is in the planar wall normal to the axis of the shaft. Chrzanowski teaches a seal assembly having a seal in a housing. The seal is exposed to a fluid pressure that urges it in mating contact with a surface of the housing. The housing has a relief depression 40 that receives the seal material to prevent excess friction under the pressure and restrains the seal. Chrzanowski teaches the depression can be formed in either wall 27 or 25,

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as art equivalent locations. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the housing of the prior art with a groove as taught by Bent to reduce friction, restrict movement, and improve the life of the seal wherein the groove is located in the planar wall normal to the axis as such is an art equivalent location as taught by Chrzanowski.

Regarding claims 4-6 and 12-15, Bent does not disclose plural grooves. The duplication of parts is considered obvious absent a showing of new and unexpected results. See *In re Harza*, 124 USPQ 378 (CCPA 1960). Further, it is known to provide plural relief depressions as evidenced by Jesswein '405. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide plural grooves.

3. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller in view of Kalsi (4,610,319).

Although Muller discloses the seal can be used in a variety of application including high pressure environments, Muller does not specifically disclose the seal is used in drilling apparatus. Kalsi teaches it is known to use a seal in a drilling apparatus to isolate lubricating fluid from drilling fluid. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use the seal of Muller in a drilling apparatus to provide an effective and long lasting seal between the fluids.

(10) Response to Argument

Ground 1

It should be noted that claim 1 does not require the seal to be a “contacting seal.” It only recites a “seal assembly for sealing with a rotatable component.” Muller seals a rotating

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component. All other structure in the claim relates to the seal and its interaction with the housing, not the shaft.

Claim 1

Appellant argues that ring 3 of Muller cannot be considered a “housing.” The examiner disagrees. The term “housing” is subjective and there are no other limitations in the claims that would prevent element 3 from being a housing. As seen in Figure 1a, for example, part of the seal, when deformed into the recesses, is retained within element 3. Therefore, element 3 “houses” the seal 4. Also, ring 3 cooperates with 8 to form an over all “housing.” Thus, element 3 is at least part of a housing. And finally, Muller discloses means for preventing twisting of the seal ring (see col. 2, lines 21-23). The “means” are the recesses/projections. Muller discloses that “preferably” the recesses are formed on the backup ring (see col. 2, lines 40-41). Thus, the ring appears to be optional and the recesses/projections could be formed on element 8.

Appellant argues that the projections and faces of the ring cannot be interpreted as a “planar” surface as required by the claim. The examiner disagrees. The faces of the projections 32 (seen best in Fig. 2b, for example) form the “planar surface” required by the claims. Surfaces 31 are considered the depressions within that surface in a similar manner as depressions 42 are within Appellant’s planar surface 34 (see Appellant’s figure 1). In other words, the faces of the projections 32 lie within a plane and thus form a “planar housing engagement surface.”

Appellant argues that the depressions 31 are actually faces. The examiner disagrees. As seen best in Figure 2b and 2c, surfaces 31 are “recessed” from surfaces 32 and forms a “depression” between each projection. Just because the “depressions” in Muller are shaped and sized differently that Appellant’s does not prevent them from being interpreted as “depressions.”

Appellant also argues that the ring does not provide an “isolated gap.” The examiner disagrees. As seen best in figure 2c, each projection 32 separates a “depression” 31 from an adjacent “depression” 31. Thus, the depressions are isolated from one another in that they aren’t in contact. Appellant argues that the gap is isolated in that the gap is sealed on all sides “to trap low (atmospheric) pressure air in the gap” and to “inhibit fluid from passing into the gap.” However, it is noted that the features upon which Appellant relies (i.e., trapped air and sealed from fluid) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claim only requires that the depression provide an isolated gap “for receiving the compressible material” (see portion “b” of claim 1). As seen in Figure 2c of Muller for example, each depression forms a gap and receives the compressible material of seal 1.

Appellant argues that the seal in claim 1 relates to a contact seal while Muller relates to a non-contacting hydrodynamic seal. Again, claim 1 does NOT require a contact seal.

Claims 7-8 and 16-17

Appellant argues that ring 2 is not a preloading mechanism. The examiner disagrees. Element 2 is an elastomeric ring. Thus it is inherently resilient or “springy.” And the ring 2 is used to clamp the seal 1 against element 3 (see Figure 4a for example). Thus, ring 2 is considered to “load” the seal into place against the projections. It is clear from Figure 4a that ring 1 is being clamped/loaded/biased into place against element 3 by ring 2.

Claims 9 and 10

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Appellant has not presented any additional arguments against the rejection of these claims.

Claim 18

Appellant has not presented any additional arguments against the rejection of this claim.

Ground 2

Claim 1

Appellant argues that Bent performs a different function than does the depression in claim 1. The examiner disagrees. First, it should again be noted that the features upon which Appellant relies (i.e., that the gap traps air and inhibits fluid from passing into the gap) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 1 only requires the isolated gap to receive the compressible material and thereby restrain movement of the seal relative to the housing. As seen in any of Figures 1-5, depression 7 forms an isolated gap that receives compressible material of the seal. And, the ring is thereby restrained against movement relative to the housing (see col. 3, lines 45-48). However, it is submitted that the depression of Bent will also function to trap air and inhibit fluid leakage due to the compressed sealing engagement on either side of the depression.

Appellant argues that Bent does not teach forming the groove on the wall that is in a plane normal to the axis. The examiner disagrees. Bent teaches that “at least one wall of the groove” has the recess/depression (see col. 1, lines 29-32). Bent is not limited to forming the recess in only the wall shown in the Figures. It can be in any of the walls. Chrzanowski

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provides further teaching that such a recess can be in any wall. Appellant argues that Chrzanowski's recess performs a different function. The examiner disagrees. Appellant's, Bent's, and Chrzanowski's recess each perform the same function. Each recess is used to receive compressible seal material to prevent movement of the seal with respect to the housing. While the recess in Chrzanowski might provide a venting feature, it also functions to receive material and lock the seal against movement (see col. 3, lines 16-30 of Chrzanowski). Thus each reference is related to the same problem with which Appellant is concerned (i.e. preventing movement relative to the housing). And all relate to sealing assemblies having a depression in a housing. And, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Chrzanowski teaches that the depression can be in a wall either perpendicular or parallel to the axis. Chrzanowski teaches that either location provides the same function, thus are equivalent.

Appellant argues that the preamble of claim 1 (admitted prior art) does not suggest the depression and that Bent and Chrzanowski lack planar surfaces, etc. However, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the preamble already discloses that the planar surfaces and other structure are known. Bent and Chrzanowski each teach that a

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depression in an engagement surface of a housing can be used to receive sealing material to lock the seal against movement relative to the housing.

Claims 2 and 11

Appellant argues there is no motivation to provide a circumferential groove in the plane normal to the axis because Chrzanowski does not teach a circumferential groove. The examiner disagrees. Again, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Bent teaches the use of a circumferential groove that can be in at least one wall of a housing. Chrzanowski teaches that such a groove will function effectively in a plane parallel or perpendicular to the axis. Chrzanowski is being applied for its teaching of equivalent groove locations. Bent already teaches the circumferential groove.

Claims 3 and 12

Appellant argues there is no motivation to locate the circumferential groove of claims 2 and 12 in the plane normal to the axis. The examiner disagrees. Again, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Bent teaches the use of a circumferential groove that can

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be in at least one wall of a housing. Chrzanowski teaches that such a groove will function effectively in a plane parallel or perpendicular to the axis. Chrzanowski is being applied for its teaching of equivalent groove locations. Bent already teaches the circumferential groove.

Claims 4-5 and 13-14

Appellant argues that none of the prior art teaches plural depressions and that Jesswein's recesses provide a different function. The examiner disagrees. As stated above, the recesses of Bent and Chrzanowski serve the same function as the recess required by the claims. In other words, the recesses receive seal material to lock the seal against movement with respect to the housing. Providing a plurality of such depressions would increase the effect. And, it has been held that the duplication of parts is considered obvious absent a showing of new and unexpected results. See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). Jesswein has been provided to show evidence of plural recesses. Jesswein shows a seal assembly having venting recesses, similar to Chrzanowski. Jesswein teaches that plural openings provide a more uniform distribution (see col. 3, lines 49-51). Like Chrzanowski, the openings would receive seal material when the pressure acts against the seal. Regardless, Bent and Chrzanowski teach the use of a circumferential groove in a plane perpendicular to an axis to lock a seal with respect to a housing. Providing plural circumferential grooves is considered obvious.

Claims 6 and 15

Appellant argues that none of the references teach the configuration required by the claims. The examiner disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references.

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Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Bent and Chrzanowski teach the use of a circumferential groove in a plane perpendicular to an axis to lock a seal with respect to a housing. Providing plural circumferential grooves is considered obvious and is evidenced by Jesswein.

Claims 7-8 and 16-17

Appellant argues that the references do not teach preloading mechanisms. Appellant also argues that the springs disclosed as admitted prior art are not used with depressions. The examiner disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the specification (preamble of claim, too) discloses that it is known to use a spring to bias a planar surface of a seal into engagement with a planar surface of a housing. Appellant argues that the sole purpose of the spring is to urge the surfaces in to the depression. However, this is NOT required by the claims. The claims only require the surfaces to be urged into engagement. The spring of the admitted prior art does this. And, Bent and Chrzanowski are being applied for their teaching of a recess.

Claim 9

Appellant has not provided any further arguments for claim 9 other than to say it depends from claim 1. Claim 1 is addressed above.

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Claim 10

Appellant has not provided any further arguments for claim 9 other than to say it depends from claim 9 (which depends from claim 1). Claim 1 is addressed above.

Ground 3

Claim 19

Appellant argues that Muller and Kalsi relate to non-contacting seals. Again, it is noted that the claims do not specify what kind of contact is made with the shaft. The claim does not require a contacting seal. Therefore, Muller and Kalsi are considered analogous to Applicant's seal because each relates to a seal assembly having a seal within a housing. Using the arrangement of Muller in a drilling apparatus like Kalsi's would provide a longer lasting seal.

Claim 20

Appellant acknowledges that Kalsi discloses the pressure balancing drilling bit. But, Appellant argues that neither Kalsi or Muller disclose the use of a contacting seal. Again, none of the claims require a contacting seal. Even if they did, it is submitted that hydrodynamic seals contact the shaft.

Examiner Comment sections d-g

It is noted that this section relates to comments made in the Response to Arguments section in the final action of 4/4/06. They are not part of the Grounds for Rejection. However, in response to Appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

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generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is known to have a sealing arrangement with mating planar sealing and housing surface. And, it is known to provide a recess in a housing surface, normal to the axis, to receive seal material and restrain movement. Appellant argues that Bent and Chrzanowski teach the use of a recess to receive material to reduce forces on the seal. Appellant argues this is not the motivation of the present invention, thus the references are non-analogous. The examiner disagrees. As set forth above, Bent and Chrzanowski are analogous. And, both also teach that the recesses restrain movement with respect to the housing, which IS the same motivation as Appellants. Even (assuming arguendo) if the references did not specifically disclose that the recesses restrain movement, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Both Bent and Chrzanowski provide motivation to modify a housing wall, normal to the axis, with a recess to lock a seal in place as well as reduce wear and forces acting on the seal.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one

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of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

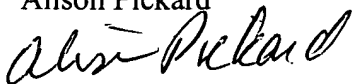
(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

Alison Pickard



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A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:

Don Hajec


Conferees:

Judy Swann



Dan Stodola

